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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,135

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EXAMINER

BEYEN, ZEWDU A

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,135	Applicant(s) AXELSSON ET AL.	
	Examiner ZEWDU BEYEN	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/23/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/23/2006 and 02/12/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-19, have been examined and are pending.

Information Disclosure Statement

An initialed and dated copy of applicant's IDS form 1449 submitted 03/23/2006, and 02/12/2009 are attached to the instant office action.

Drawings

The drawings are objected to because figures 1 and 8 are not descriptive enough. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 19 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 19 references a computer program that is not embedded within a computer readable medium or other statutory matter.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,4,6 and 19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,2,6, and 17 of copending Application No. 10/584136.

Claim 1 of the instant application and claim 1 of copending application 10/584136 are substantially directed to the same subject matter; Claim 1 of copending application does not specify determining a plurality of routes. However, it would have been obvious to one ordinary skill in the art at the time the invention was made to add this feature to the invention defined by claim 1 of the instant application for the purpose of allowing nodes to route packets in different routes so that the intended node receives the packets more reliably

Claim 6 of the instant application and claim 6 of copending application 10/584136 are substantially directed to the same subject matter; Claim 6 of copending application does not specify determining a plurality of routes. However, it would have been obvious to one ordinary skill in the art at the time the invention was made to add this feature to the invention defined by claim 6 of the instant application for the purpose of allowing nodes to route packets in different routes so that the intended node receives the packets more reliably

Claim 19 of the instant application and claim 17 of copending application 10/584136 are substantially directed to the same subject matter; Claim 17 of copending application does not specify determining a plurality of routes. However, it would have been obvious to one ordinary skill in the art at the time the invention was made to add this feature to the invention

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defined by claim 19 of the instant application for the purpose of allowing nodes to route packets in different routes so that the intended node receives the packets more reliably

Dependent claim 4 of instant application and dependent claim 2 of the copending application 10/584136 are substantially directed to the same subject matter.

This is a provisional obviousness-type double patenting rejection.

Claim comparison table

Claim No.	Instant application	Claim No.	Pending Application No. 10/584136
1	A method for efficient routing in a multiple hop wireless communication network characterized in that data packets are routed over transmission paths using the following steps: providing link status information by acquiring link status quality between nodes in the network; updating a routing element with said link status information; determining possible routes with essentially similar link quality status for said data packet; and routing said data packet via the determined routes.	1	A method for efficient routing in a multiple hop wireless communication network characterized in that, the routing method comprise the steps of: providing link status information by acquiring link status quality between nodes in the network; updating a routing element with said link status information; determining an appropriate route according to said link status information with respect to traffic content; and routing traffic according to said determined appropriate route.
4	The method according to claim 1 characterized in that said wireless link comprise the step of using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.	2	The method according to claim 1 further comprising the step of using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.
6	A system for efficient routing in a communication network having a plurality of nodes, each node comprising link status acquiring	6	A system for efficient routing in a multiple hop wireless communication network comprising: acquiring means for acquiring link status information

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	means for acquiring information about link status between neighboring nodes; updating means for updating routing means with said link status information; determination means using said link status information for determining possible routes for routing of a data packet; and routing means for routing said data packet via said determined routes		between infrastructure nodes in a network comprising a plurality of nodes; updating means for updating said link status information to a routing element; determination means for determining an appropriate route with respect to traffic content; and routing means for routing data packets according to determined route
19	A computer program in a node in a wireless communication network, the program comprising: a first instruction set for acquiring link status information between nodes in the network; a second instruction set for updating a routing element with said link status information; a third instruction set for determining possible routes with essentially similar link quality status; and a fourth instruction set for routing a data packet via said determined routes	17	A computer program in a node in a wireless communication network, the program comprising: a first instruction set for acquiring link status information between nodes in the network; a second instruction set for updating a routing element with said link status information; a third instruction set for determining an appropriate route according to said link status information with respect to traffic content; and a fourth instruction set for routing traffic according to said determined appropriate route

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,5-8, 11-14,and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Billhartz to **(US-PG-PUB-2003/0204587)**.

Regarding claims 1, 6, and 19, Billhartz teaches method for efficient routing in a multiple hop wireless communication network characterized in that data packets are routed over transmission paths **(see fig. 5, and abstract)**

providing link status information by acquiring link status quality between nodes in the network**(abstract, discloses monitoring traffic communicated between nodes) ;**

updating a routing element with said link status information**(abstract, discloses storing in each nodes traffic information in database) ;**

determining possible routes with essentially similar link quality status for said data packet**(abstract, discloses selecting routes based on the stored traffic information) ;**

routing said data packet via the determined routes**(abstract , discloses selecting routes, inherently the selected routes are used for the purpose of routing packets).**

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Regarding claim 5, Billhartz teaches the method according to claim 4 characterized in that said transmission system comprise the step of using a transmission system standards IEEE 802.11 ([0075] discloses IEEE 802.11)

Regarding claim 7, Billhartz teaches a system according to claim 6 wherein communication between said nodes is wireless (**abstract, discloses wireless mobile nodes**).

Regarding claim 8, Billhartz teaches a system according to claim 7 wherein the communication network is an ad hoc network (**abstract, discloses a mobile ad hoc network**).

Regarding claim 11, Billhartz teaches the system according to claim 10 characterized in that said transmission system is IEEE 802.11 standards ([0075] discloses IEEE 802.11)

Regarding claim 12, Billhartz teaches a node in a communication network having a plurality of nodes (**fig.5 and abstract**) , said node comprising processing means for processing network control information(**abstract discloses each node generating traffic information based upon how much traffic is being communicated between various nodes in the network**) ; storing means for storing network control information(**abstract , discloses storing in each nodes traffic information in database**) ; transmission means for transmitting data packets(**it is inherent to any node in the communication network**) ; link status acquiring means for acquiring link information comprising link status and link quality between neighboring nodes(**abstract,**

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discloses monitoring traffic communicated between nodes); determination means using acquired link information for determining at least two routes to a destination for routing of a data packet(**abstract, discloses selecting routes based on the stored traffic information**); and routing means for routing said data packets via said determined routes(**abstract , discloses selecting routes, inherently the selected routes are used for the purpose of routing packets**).

Regarding claim 13, Billhartz teaches the node according to claim 12 wherein communication between nodes is wireless (**abstract, discloses wireless mobile nodes**).

Regarding claim 14, Billhartz teaches the node according to claim 13 wherein said communication network is an ad hoc network (**abstract, discloses a mobile ad hoc network**).

Regarding claim 17, Billhartz teaches the node according to claim 16 characterized in that said transmission system is IEEE 802.11 standards (**[0075] discloses IEEE 802.11**).

Regarding claim 18, Billhartz teaches a wireless communication network comprising a system according claim 6, comprising one or several nodes (**see fig.5, and abstract**).

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 2 is rejected under 103(a) as being unpatentable over Billhartz in view of Kuszmaul to (US 5,111,198)

Regarding claim 2, Billhartz teaches the method according to claim 1, but Billhartz does not teach combining said data packets at a destination node.

However, Kuszmaul teaches combining said data packets at a destination node (col.2, lines 9-12, discloses combining message that are routed from multiple routes)

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Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz combine data packets at destination node, as suggested by Kuszmaul. This modification would benefit the method of Billhartz to assemble received packets at each node that comes from different routes.

5. Claims 3,4,9,10,15,and 16 are rejected under 103(a) as being unpatentable over Billhartz in view of Boaz to **(US-PG-PUB-2008/0048883)**

Regarding claim 3, Billhartz teaches the method according to claim 1, but Billhartz does not teach replacing one of said data packets with parity bits for error detection and error correction purposes

However, Boaz teaches replacing one of said data packets with parity bits for error detection and error correction purposes **([0064] discloses CRC error checking on every message)**

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz transmit parity bits for error detection and error correction purpose, as suggested by Boaz. This modification would benefit the method of Billhartz to validate the transmitted packets.

Regarding claim 4, Billhartz teaches the method according to claim 1, but Billhartz

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does not teach using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz

However, Boaz teaches a transmission system based on electromagnetic radiation with a frequency in the range of 902-928Mhz (**[0063] discloses Transmit and receive frequency: 902-928 MHz**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz implement a transmission system based on electromagnetic radiation with a frequency in the range of 902-928 MHz, as suggested by Boaz. This modification would benefit the method of Billhartz to use a wide range of frequency as a design specification.

Regarding claim 9, Billhartz teaches the system according to claim 6, but Billhartz doe not teach replacing one of said data packets with parity bits for error detection and error correction purposes

However, Boaz teaches replacing one of said data packets with parity bits for error detection and error correction purposes (**[0064] discloses CRC error checking on every message**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz transmit parity bits for error

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detection and error correction purpose, as suggested by Boaz. This modification would benefit the method of Billhartz to validate the transmitted packets.

Regarding claim 10, Billhartz teaches the system according to claim 7, but Billhartz does not teach using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz

However, Boaz teaches a transmission system based on electromagnetic radiation with a frequency in the range of 902-928Mhz **([0063] discloses transmit and receive frequency: 902-928 MHz)**

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz implement a transmission system based on electromagnetic radiation with a frequency in the range of 902-928 MHz, as suggested by Boaz. This modification would benefit the method of Billhartz to use a wide range of frequency as a design specification.

Regarding claim 15, Billhartz teaches the node according to claim 12, but Billhartz doe not teach replacing one of said data packets with parity bits for error detection and error correction purposes

However, Boaz teaches replacing one of said data packets with parity bits for error detection and error correction purposes **([0064] discloses CRC error checking on every message)**

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz transmit parity bits for error detection and error correction purpose, as suggested by Boaz. This modification would benefit the method of Billhartz to validate the transmitted packets.

Regarding claim 16, Billhartz teaches the node according to claim 12, but Billhartz does not teach using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz

However, Boaz teaches a transmission system based on electromagnetic radiation with a frequency in the range of 902- 928Mhz (**[0063] discloses Transmit and receive frequency: 902-928 MHz**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz implement a transmission system based on electromagnetic radiation with a frequency in the range of 902-928 MHz, as suggested by Boaz. This modification would benefit the method of Billhartz to use a wide range of frequency as a design specification.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (See PTO-892).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZEWDU BEYEN whose telephone number is (571)270-7157. The examiner can normally be reached on Monday thru Friday, 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 1-571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Z. B./

Examiner, Art Unit 2419

/Hassan Kizou/

Supervisory Patent Examiner, Art Unit 2419